**SP 12.1** A semi-infinite string with tension $T$ and mass per unit length $\rho$ is supported by a spring at its left end.

a) Determine the reflected wave due to an incident wave given by: $y(x,t) = Y_0 \cos(\gamma(x + ct))$.

b) What happens to the reflected wave if $k/T \to \infty$.

c) What happens to the reflected wave if $k/T \to 0$.

![String Diagram](image)

**SP 13.1** A tensioned string is fixed at one end and spring-supported at its other end.

a) Determine the first three natural frequencies and modes of vibration for the string shown with $k=T/4L$.

b) Normalize the modes.

![String Diagram](image)